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ABSTRACT

A study examined the effects of less able readers' learning vocabulary from listening. Subjects, 43 sixth-grade students in two classes in an urban public school, were read one of two selections from seventh-grade literature anthologies. Two days later, the subjects completed orally or in writing a multiple-choice vocabulary test containing words from both selections. Results indicated that: (1) children can learn a significant amount of word meanings from exposure to an oral presentation; and (2) even those children who begin with the lowest vocabulary achievement can learn as many word meanings from listening, if not more, than those who have higher initial vocabulary knowledge. (Two tables and one figure of data are included; 25 references are attached.) (RS)

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Learning Meaning Vocabulary Through Listening: A Sixth-Grade Replication

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Learning Meaning Vocabulary Through Listening: A Sixth-Grade Replication

Nagy and Anderson (1984) estimate that there are 88,700 word forms in printed school English from the first grade through the twelfth grade. About half of these words will occur no more than once or twice and probably will not need to be learned. Assuming that this child learns the other half of them, or about 45,000 words, this means that the average child learns about 3000 new word meanings per year. That vocabulary learning of such volume actually occurs has been confirmed by White, Graves, and Slater (1990), who estimated that children's actual vocabulary growth is between 1000 and 5000 words, with the average being about 3000 words.

Learning Word Meanings from Context

Where does this growth come from? As Nagy and Herman (1987) point out, even the best direct vocabulary instruction can account for only a small portion of this phenomenal amount of growth.

Nagy and Herman (1987) have calculated that, given the average amount of reading done by school age children, the average percentage of unknown words in materials that they read, and an average rate of learning one unknown word about of 20 in a single exposure (5%), that they could account for a significant amount, if not all, of the 3000 words learned each year. This 5% figure is a conservative estimate based on their studies of incidental learning from context (Herman, Anderson, Pearson, & Nagy, 1987; Nagy, Anderson & Herman, 1987; Nagy, Herman, & Anderson, 1985) as well as that of Jenkins, Stein, and Wysocki (1984). This series of studies all had children read various articles containing words that were presumed to be unknown to them. Sometime later (15 minutes later in Nagy et al. [1985], the next day in Herman et al. [1987], and a week later in Nagy, Anderson & Herman, [1987]), students were given a surprise multiple-choice vocabulary test. Learning of unknown words varied from 5% to 22% from a single exposure to words in the text. The 5% figure is their conservative estimate of long-range vocabulary learning.

In this series of studies, some text and learner characteristics were systematically varied (see Nagy & Herman, 1987 for review). For example, words for complex concepts (or words such as *tributary* which are tied to a particular schema) were more difficult to learn from context than simpler concepts (Herman et al., 1987). More "considerate" text (or text in which the words' meanings were given elaborate support and examples) were more conducive to learning words from context than less considerate texts (Herman, et al, 1987; Nagy, Anderson & Herman, 1987; see also Konopak, 1988). There was some evidence that the effects of text considerateness were stronger in expositions than in narratives (Nagy, Anderson & Herman, 1987).

These studies have examined the learning of vocabulary words through exposure to written context and have concluded that children can make large gains in vocabulary knowledge simply through such exposure. However, as Stanovich (1986) points out, those who can understand the other words in the text are more likely to learn a word from written context. Children who do not read well, do not read as much, or read material that is simplified by reducing the vocabulary load. From such reading, children will learn fewer word meanings. If vocabulary knowledge at least partially enables children to read more demanding texts, lack of word meaning knowledge will further impair their ability to read more challenging texts, which will in turn further impair their growth in vocabulary, especially when compared to their competently-reading peers who are reading more and more advanced texts. Because the rich get richer and the poor get poorer, or the gap between good and poor readers continues to grow wider as children progress through school, Stanovich (1986) calls these "Matthew effects." The implication of these Matthew effects are that poor readers will continue to fail unless the cycle is explicitly broken.

It is unclear whether poor readers or low aptitude readers are less capable than their peers at learning word meanings from context. The trend seems to be that in tasks in which subjects were given explicit instructions to derive word meanings from context (e.g. McKeown, 1985; Shefelbine, 1990) high ability students are better at deriving word meanings than low ability students (with abilty measured in various ways). However, in incidental learning tasks, in which subjects were *not* specifically

directed toward learning word meanings from a text, there do not seem to be ability differences (see Stahl, 1990, for review). These incidental tasks seem closer to the actual conditions in which most learning from context occurs. If there are no differences in the ability to learn word meanings incidentally, then differences in word knowledge between good and poor readers may be largely due to differences in exposure to words in context. Direct vocabulary instruction can make up part of this difference (see Stahl & Fairbanks, 1986). Reading stories to children can make up another part.

Learning Word Meanings from Listening

Elley (1989) found that children could learn word meanings from listening to stories. In a series of two studies, the 7- and 8-year olds he studied in New Zealand learned about 15% of the unknown words in the books read in class without any teacher explanation and about 40% with teacher explanations. These gains were found up to 3 months after the stories had been read. He found that the best predictors of whether a word was to be learned was how often it appeared in the text, whether it was illustrated, and the amount of redundancy in the surrounding context, many of the same features found by Nagy and his colleagues to affect learning from written context.

Eller, Pappas, and Brown (1988), found after three readings of a children's trade book, that Kindergarterners used more words from the text that were presumed not to be known, suggesting that they were learning new words from storybook reading. Leung and Pikulski (1990), using the same text and similar subjects as in the Eller et al. study but adding a pretest and a control group, confirmed these findings.

We have found no studies dealing with learning from listening to stories using older children. Because of the importance of breaking the cycle of Matthew effects in older children, it is important to extend these learning from context effects to that population. The following study was intended to examine specifically the effects of learning from listening to less able readers within that population.

Method

Subjects

Subjects were 43 sixth graders in two classes in an urban public school. About 60% of the students were white, about 30% African-American, and the remaining were from other backgrounds. Their families were predominantly, but not entirely, middle SES. According to standardized test scores provided by the district, the average student scored at about the 55th percentile on the Iowa Test of Basic Skills (ITBS), Reading Composite (Hieronymus, Hoover, & Lindquist, 1986). There were no significant differences among classes on the Iowa. Grade equivalent scores on the ITBS ranged from 4.2 to 9.7, with no student reading below the fourth grade level. It has been suggested that students reading above the fourth grade level can be assumed not to have difficulties in decoding text (e.g. Chall, 1983).

Materials

Two selections were chosen from seventh-grade literature anthologies to read to the students. One dealt with the Greek myth of Phaëthon; the other with a Vietnamese myth. They were chosen to be parallel in structure and theme. They were both about 1000 words in length and took about 10 minutes to read aloud. According to the Dale-Chall readability formula (Dale & Chall, 1948), both passages were suitable to be read by 7th-8th graders.

Fifteen words were chosen from each of the selections to be potentially difficult by the experimenters and a classroom teacher. Judging from the students' performances on the posttests, the vast majority of these words were, in fact, not well known. However, two of the words in the Vietnamese selection and one in the Phaëthon selection were known by 90% or more of the students in the control condition and were dropped from the analysis.

A 30-item multiple choice test was developed to test subjects' knowledge of the word meanings. This test was developed by having each of the target words matched with a correct synonym and three distractors taken from the same semantic field. Internal consistency was acceptable for an experimenter-made test (*alpha* = .70).

Procedure

The second author, a university researcher, read one of the two selections to each class, as part of their regular language arts period. The classes were not told that they would be tested on any of the words encountered in the story. The researcher made no attempt to discuss or highlight any of the specific word meanings in the selections.

Two days later, all students were given the vocabulary test, containing words taken from the selection they had heard and that which they did not hear. Half of each class took the test in written form. For the other half of each class, one of the experimenters read each of the items aloud as students followed along on the written protocol. This listening mode was provided in case students might know a word from listening but not recognize it in print.

Results

Children recognized an average of 53.5% of the words in the heard passages and an average of 46.9% from the unheard passages, a difference of 6.6%, roughly comparable to learning from context effects found in other studies.

To test the statistical significance of this effect, data were submitted to a hierarchical repeated measures Analysis of Variance, using an analysis parallel to that of Nagy, Anderson, and Herman (1987). In this analysis, the number of Heard and Unheard words correct on the multiple choice measure were treated as a repeated measurement. In this analysis, the main effects for the between subjects factors are not of interest and should be essentially zero, as they are in this analysis. What is of interest are the effects of these factors on learning from context. These were tested by examining the interaction between Condition (Heard, Unheard) and Group (Group 1 heard the Phaëthon selection, Group 2 the Vietnamese) and Testing Mode (Written, Listening). The results of this analysis are in Table 1.

Insert Table 1 about here

As evidenced by the significant Condition effect, there was significant learning from context effect. Students knew the meanings of about 6.6% more words from the selection they have heard, than from the selection they did not hear. This is roughly comparable to the findings of Nagy and his colleagues. However, as shown in the stem and leaf diagram of the results in Table 2, this learning varied considerably among subjects, from the 9 subjects who knew more words in the unheard selection than in the heard selection to one student who had a 56% difference. A stem and leaf diagram is a graphic display of the distribution of scores. The left hand column represents the "tenth" place and the right hand numbers represent the "hundredth" place, so that the top four sets of numbers represent differences of -.42, -.26, -.26, and -.26 respectively.

Insert Table 2 about here

The significant interactions between group and condition and the significant three-way interaction between group, mode, and condition explain part of this variation. In a counterbalanced design such as this, often significant interaction terms reflect the influence of a factor not included in the design. In this case, more words were known from the Vietnamese passage than from the Phaëthon passage, regardless of which passage the students heard. Since the passages varied considerably on a number of different dimensions, it is difficult to interpret this finding.

The difference between the two test modes, listening and reading, was not statistically significant. Subjects' performance did not seem to be affected by whether the test items were written or whether they were heard. This lack of a test mode effect suggests that students who learn word meanings from listening might be able to transfer that learning to written words with little difficulty. Some theorists (e.g. Gough & Tumner, 1986) have suggested that, once students can decode automatically, as all of

these students could be presumed to be able to, oral vocabulary and written vocabulary are identical.

Differences between readers also account for some of the variations found. We graphed the relationship between the percentage of unheard words a subject knew and that subject's learning from context, measured by the difference between heard and unheard words. Since the number of unheard or control words known is a rough measure of the subjects' vocabulary knowledge prior to the study, this analysis was intended to examine whether the students who entered with the lowest amount of word knowledge could learn from listening. This is shown in Figure 1.

Insert Figure 1 about here

The correlation between these two variables is -0.527 ($p < .05$), suggesting that the greatest gains were made by subjects who knew the fewest words prior to reading. This could reflect a ceiling effect, since subjects who knew a great many words in the beginning could gain little. Because of this apparent ceiling effect, the average gain of 6.6% is probably artificially low and that potential gains from listening are higher. Subjects who knew 33% or fewer of the words from the passages they did not hear made an average gain of 22%, suggesting a possible upper figure on a learning from context effect. These figures, 6.6% and 22%, are both within the range found for learning from context in similar studies conducted by Nagy and his colleagues (see Nagy & Herman, 1987 for review).

Discussion

The results of this study are simple to summarize. First, this study extends the findings of Herman, Anderson, Pearson, and Nagy (1987); Nagy, Anderson, and Herman (1987); and Nagy, Herman, and Anderson (1985) that children can learn a significant amount of word meanings from exposure to an oral presentation. Second, it extends the findings of Elley (1989), Eller et al. (1988) and Leung and Pikulski (1990) from primary-aged children to sixth graders. Finally, it demonstrates that even those children who begin with the lowest vocabulary achievement can learn as many word

meanings from listening, if not more, than those who have higher initial vocabulary knowledge. The lowest third of the students in our study learned word meanings effectively from material written above their grade level.

Quite simply, these results give another reason for recommending that teachers read to their classes, even up to the middle grades. It has been suggested that reading stories and chapters of novels to older children can stimulate their interest in reading (Trelease, 1989), expose them to more mature forms of language (Chomsky, 1972), and provide background information necessary to read other, related texts (Hartman, 1990). The results of this study suggest that reading literature to students might, over an extended period of time, be a significant source of students' growth in word knowledge. These long-term effects are only inferred, and need to be tested using a longer term of study.

Learning word meanings from listening may be more important for the child with reading problems, who is cut off from a significant source of vocabulary growth, that of written text. Continuing to increase this child's store of word meanings may allow more rapid progress once the child's difficulties are addressed. Without such continued growth, a child whose word recognition difficulties, for example, are evenutally resolved, may be restricted by not knowing word meanings that his or her classmates had picked up in the course of their reading. Continual reading of moderately difficult but interesting material may make up some of the growth in vocabulary that the child with reading problems may be missing.

If the 10 minutes spent in reading aloud in this study seems small, it should be contrasted with the amount of time that students read during the day. Studies have found that this can be as low as 3 minutes a day for less competent readers, up to about 20 minutes including home and school reading (see Anderson, Wilson, & Fielding, 1988). Given the relatively small amounts of time children ordinarily spend reading, especially those who are poor readers to begin with, 10 minutes of exposure to sophisticated language may make a considerable difference.

References

Anderson, R. C., Wilson, P.T., & Fielding, L.G. (1988). Growth in reading and how children spend their time outside of school. *Reading Research Quarterly, 23*, 285-303.

Chall, J. S. (1983). *Stages of reading development* . New York: McGraw-Hill.

Chomsky, C.A. (1972). Stages in language development and reading exposure. *Harvard Educational Review, 42* , 1-33.

Dale, E., & Chall, J.S. (1948). A formula for predicting readability. *Educational Research Bulletin, 27* , 11-20, 37-54.

Eller, R. G., Pappas, C. C., & Brown, E. (1988). The lexical development of kindergartners: Learning from written context. *Journal of Reading Behavior, 20*, 5-24.

Elley, W. B. (1989). Vocabulary acquisition from listening to stories. *Reading Research Quarterly, 24,* 174-187.

Gough, P. B. &. Tumner, W.E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education, 7,* 6-10.

Hartman, D. (1990). *Eight readers reading: A study of intertextual links.* unpublished Ph.D. dissertation, University of Illinois, Urbana-Champaign.

Herman, P. A., Anderson, R.C., Pearson, P.D., & Nagy, W.E. (1987). Incidental acquisition of word meanings from expositions with varied text features. *Reading Research Quarterly, 23* , 263-284.

Hieronymus, A.N., Hoover, H.D., & Lindquist, E.F. (1986). *Iowa tests of basic skills.* Chicago: Riverside Publishing Company.

Jenkins, J. R., Stein, M.L., & Wysocki, K. (1984). Learning vocabulary through reading. *American Educational Research Journal, 21* , 767-788.

Konopak, B. C. (1988). Effects of inconsiderate vs. considerate text on secondary students' vocabulary learning. *Journal of Reading Behavior, 20*, 5-24.

Leung, C. B., & Pikulski, J. J. (1990). Incidental learning of word meanings by Kindergarten and first-grade children through repeated read aloud events. In J. Zutell, & S. McCormick (Eds.), *Literacy theory and research: Analyses from multiple paradigms,* (pp. 231-240). Chicago: National Reading Conference.

McKeown, M.G. (1985). The acquisition of word meaning from context by children of high and low ability. *Reading Research Quarterly, 20* , 482-496.

Nagy, W.E. & Anderson, R.C. (1984). How many words are there in printed school English? *Reading Research Quarterly, 19* , 304-330.

Nagy, W.E. & Herman, P.A. (1987). Breadth and depth of vocabulary knowledge: Implications for acquisition and instruction. In M.G. McKeown & M.E. Curtis (Eds.). *The nature of vocabulary acquisition* (pp. 19-35). Hillsdale, NJ: Erlbaum.

Nagy, W. E., Herman, P.A., & Anderson, R.C. (1985). Learning words from context. *Reading Research Quarterly, 20* , 233-253.

Nagy, W. E., Anderson, R.C., & Herman, P.A. (1987). Learning word meanings from context during normal reading. *American Educational Research Journal, 24,* 237-270.

Shefelbine, J.L. (1990). Student factors related to variability in learning from context. *Journal of Reading Behavior, 22* , 71-97.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*, 360-407.

Stahl, S. A. &. Fairbanks., M.M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research, 56,* 72-110.

Stahl, S. A. (1990). *Beyond the instrumentalist hypothesis: Some relationships between word meanings and comprehension.* (Tech. Rep. No. 505). Champaign, IL: University of Illinois,Center for the Study

of Reading.

Trelease, J. (1989). *The new read-aloud handbook* . New York:Viking Penguin.

White, T. G., Graves, M.F., & Slater, W.H. (1990). Growth of reading vocabulary in diverse elementary schools: Decoding and word meaning. *Journal of Educational Psychology, 82,* 281-290.

Table 1

Analysis of Variance for Multiple Choice Measure

	MS	F	*p*
Between Subjects Effects			
Selection (Vietnam, Phaëthon)	.016	0.29	.595
Mode of Testing (Listening, Reading)	.000	0.01	.927
Selection x Mode	.039	0.70	.407
Error	.055		
Within Subjects Effects			
Condition (Heard, Not Heard)	.102	6.12	.018
Selection x Condition	.074	4.47	.041
Mode x Condition	.007	0.43	.519
Selection x Mode x Condition	.116	7.00	.012
Error	.017		

Table 2

Stem and Leaf Diagram of
Differences between Heard and Not Heard Passages

-.4	2
-.3	
-.2	666
-.1	87200
0	653332
.1	00123999
.2	05566668
.3	344
.4	
.5	6

Figure 1

Relationship between Control Word Knowledge and Learning from Context